

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Knöpfle, et al.  
Serial No.: Unknown  
Group Art Unit: Unknown  
Examiner: Not assigned  
For: A SELF-RETAINING IMPLANT AND A DEVICE FOR  
SECURING THE IMPLANT

**PRELIMINARY AMENDMENT**

BOX PATENT APPLICATION  
Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Prior to examination on the merits please amend the specification and claims as follows and consider the accompanying remarks.

**IN THE SPECIFICATION:**

Please add the following as Paragraph 1 on Page 1 of the specification:

This application claims priority to German Application  
No. DE 19907354A1 filed April 24, 2001.

**IN THE CLAIMS:**

Please amend Claims 1 through 27 as follows:

1. (Amended) A self-retaining implant for attaching a bone cover or a bone  
fragment, the implant comprising:

a support element having an upper side and a lower side, the lower side for  
facing a surface of the bone cover or the bone fragment; and

an extension extending from the lower side of the support element and supporting therefrom at least one spike, which extends towards the bone cover or bone fragment and can be driven laterally into the bone cover or bone fragment.

2. (Amended) The implant according to Claim 1, wherein the extension extends substantially at right angles to the support element.

3. (Amended) The implant according to Claim 1, wherein the support element comprises two support arms extending in opposite directions from the extension, the first of the two support arms cooperating with a skull bone and the second of the two support arms cooperating with the bone cover or bone fragment.

4. (Amended) The implant according to Claim 1, wherein the support element has a strip-like form.

5. (Amended) The implant according to Claim 1, wherein the lower side of the support element is concave or spherically curved at least in sections.

6. (Amended) The implant according to Claim 1, wherein the spike is extends from an end of the extension remote from the support element.

7. (Amended) The implant according to Claim 1, wherein the spike has a triangular form.

8. (Amended) The implant according to Claim 1, wherein the spike comprises sharpened edges.

9. (Amended) The implant according to Claim 1, wherein, at its end cooperating with the skull bone, the support element defines a screw hole therethrough.

10. (Amended) The implant according to Claim 9, wherein the support element has a thickness increasing in the direction of the screw hole.

11. (Amended) The implant according to Claim 9, wherein an inside of the screw hole is spherically curved.

12. (Amended) A self-retaining implant for attaching a bone cover or a bone fragment to a skull, the implant comprising:

a support element with an upper side and a lower side for contacting the bone cover or the bone fragment, and

an extension, extending from the lower side of the support element in such a manner that the support element and the extension form a T-shaped structure in cross section,

the extension supporting at least one spike, which extends essentially parallel to the support element and can be driven laterally into the bone cover or bone fragment.

13. (Amended) A device for securing a self-retaining implant to a bone cover or bone fragment, wherein the implant is of the type having a support element, an extension extending therefrom, and a spike affixed to the extension and substantially parallel thereto, the device comprising:

a receiving element defining a slot at one end thereof for receiving at least a portion of the implant support element; and

a driving-in mechanism which coupled to the receiving element for driving the implant, preferably at least one spike of the implant, laterally into the bone cover or bone fragment.

14. (Amended) The device according to Claim 13, wherein the receiving element includes an end such that a striking force can be applied to the receiving element end by means of the driving-in mechanism.

15. (Amended) The device according to Claim 14, wherein the driving-in mechanism comprises a striking element displaceable against a spring force.

16. (Amended) The device according to Claim 15, wherein the striking element is a first carriage guided coaxial to the receiving element.

17. (Amended) The device according to Claim 13, wherein the driving-in mechanism further comprises an operating mechanism for selective coupling and decoupling with the striking element.

18. (Amended) The device according to Claim 17, wherein the driving-in mechanism further comprises a coupling device interposed between the operating mechanism and the striking element, the coupling device normally biased for coupling the operating mechanism with the striking element.

19. (Amended) The device according to Claim 18, wherein the driving-in mechanism further comprises a decoupling device for decoupling the coupling device of the operating mechanism from the striking element.

20. (Amended) The device according to Claim 13, wherein the device includes a pistol grip.

21. (Amended) The device according to Claim 18 wherein the operating mechanism further includes a finger operable trigger.

22. (Amended) The device according to Claim 21 wherein the finger operable trigger is coupled with a second carriage displaceable against a spring force, and the coupling device couples and decouples the second carriage with the striking element.

23. (Amended) The device according to Claim 20, wherein the receiving element extends forwardly from an upper part of the pistol grip in the manner of a gun barrel in relation to a gun body.

24. (Amended) The device according to Claim 13, wherein the receiving element further comprises a self-locking mechanism in the slot for releasably engaging the support element of the implant.

25. (Amended) A device for securing a self-retaining implant of the type having a support element, an extension extending therefrom, and a spike affixed to the extension to a bone cover or a bone fragment, the device comprising:

a force-transmitting element for cooperating with the implant; and

a driving-in mechanism for applying a striking force to the force-transmitting element in order to drive-in the implant into the bone cover or bone fragment.

26. (Amended) A device for securing a self-retaining implant of the type having a support element, an extension extending therefrom, and a spike affixed to the extension to a bone cover or bone fragment, the device comprising:

a receiving element for releasably receiving the implant; and

a force-receiving surface coupled in a force-transmitting manner with the receiving element for introducing a driving-in force into the implant, in order to drive the spike of the implant, laterally into the bone cover or into the bone fragment.

27. (Amended) The device according to Claim 26, wherein the receiving element further comprises a self-locking mechanism for releasably receiving the implant.

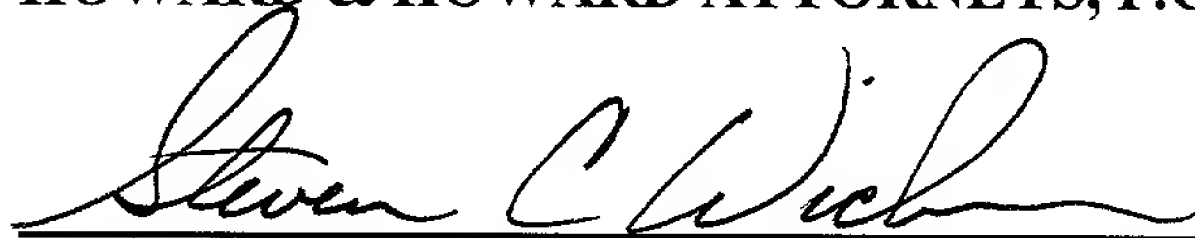
**REMARKS**

Applicants submit that the amended claims are sufficiently definite under 35 U.S.C. § 112, so as to reasonably apprise those skilled in the art as to their scope. Applicants' invention is directed to problems that are not addressed by any of the references of record, and solves inconveniences experienced in the prior art, thereby representing a significant advancement in the art. Applicants therefore respectfully submit that Claims 1-27, inclusively, should be allowed, since the references of record taken singly or in any combination do not teach the bone implant and securing device set forth therein.

Applicants have made a concerted effort to place this application in condition for allowance. If the Examiner believes that there are any additional informalities the courtesy of a telephone call to Applicants' attorney would be appreciated.

**Respectfully submitted,**

**HOWARD & HOWARD ATTORNEYS, P.C.**



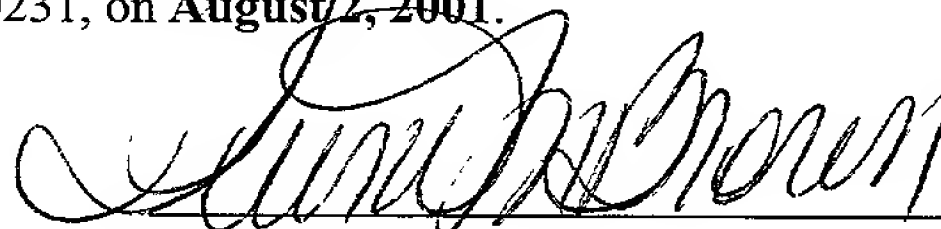
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**August 2, 2001**

**Date**

**CERTIFICATE OF EXPRESS MAIL**

I hereby certify that this paper or fee is being deposited with the United States Postal Service as Express Mail, mail label no. EL604434936US, postage prepaid, in an envelope addressed to Box Patent Application, Assistant Commissioner of Patents, Washington, D.C. 20231, on August 2, 2001.



Irene M. Brown

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**MARKED-UP VERSION**

1. (Amended) A self-retaining implant for attaching a bone cover or a bone fragment, [with] the implant comprising:

a support element [with] having an upper side and a lower side, the lower side for facing a surface of the bone cover or the bone fragment; and

an extension[, which is arranged on] extending from the lower side of the support element and [supports] supporting therefrom at least one spike, which extends towards the bone cover or bone fragment and can be driven laterally into the bone cover or bone fragment.

2. (Amended) The implant according to Claim 1, [characterized in that] wherein the extension extends substantially at right angles to the support element.

3. (Amended) The implant according to Claim 1, [characterized in that] wherein the support element comprises two support arms extending in opposite directions from the extension, the first of the two support arms cooperating with a skull bone and the second of the two support arms cooperating with the bone cover or bone fragment.

4. (Amended) The implant according to Claim 1, [characterized in that] wherein the support element has a strip-like form.

5. (Amended) The implant according to Claim 1, [characterized in that] wherein the lower side of the support element is concave or spherically curved at least in sections.

6. (Amended) The implant according to Claim 1, [characterized in that] wherein the spike is [arranged at an] extends from an end of the extension remote from the support element.

7. (Amended) The implant according to Claim 1, [characterized in that] wherein the spike has a triangular form.

8. (Amended) The implant according to Claim 1, [characterized in that] wherein the spike comprises sharpened edges.

9. (Amended) The implant according to Claim 1, [characterized in that] wherein, at its end cooperating with the skull bone, the support element [comprises] defines a screw hole therethrough.

10. (Amended) The implant according to Claim 9, [characterized in that] wherein the support element has a thickness increasing in the direction of the screw hole.

11. (Amended) The implant according to Claim 9, [characterized in that] wherein an inside of the screw hole is spherically curved [on the inside].

12. (Amended) A self-retaining implant for attaching a bone cover or a bone fragment to a skull, [with] the implant comprising:

a support element with an upper side and a lower side for contacting the bone cover or the bone fragment, and

an extension, [which is arranged on] extending from the lower side of the support element in such a manner that the support element and the extension form a T-shaped structure in cross section, the extension supporting at least one spike, which extends essentially parallel to the support element and can be driven laterally into the bone cover or bone fragment.

13. (Amended) A device for securing a self-retaining implant to a bone cover or bone fragment, [with] wherein the implant is of the type having a support element, an extension extending therefrom, and a spike affixed to the extension and substantially parallel thereto, the device comprising:

a receiving element [for] defining a slot at one end thereof for receiving at least a portion of the implant support element; and

a driving-in mechanism which [can be] coupled [with] to the receiving element for driving the implant, preferably at least one spike of the implant, laterally into the bone cover or bone fragment.

14. (Amended) The device according to Claim 13, [characterized in that] wherein the receiving element includes an end such that a striking force can be applied to the receiving element end by means of the driving-in mechanism.

15. (Amended) The device according to Claim 14, [characterized in that] wherein the driving-in mechanism comprises a striking element displaceable against a spring force.

16. (Amended) The device according to Claim 15, [characterized in that] wherein the striking element is a first carriage guided coaxial to the receiving element.

17. (Amended) The device according to Claim 13, [characterized in that the device] wherein the driving-in mechanism further comprises an operating mechanism[, preferably finger-operated, for the driving-in mechanism] for selective coupling and decoupling with the striking element.

18. (Amended) The device according to Claim 17, [characterized in that] wherein the driving-in mechanism further comprises a coupling device interposed between the operating mechanism and the striking element, the coupling device normally biased for coupling the operating mechanism with the striking element.

19. (Amended) The device according to Claim 18, [characterized in that] wherein the driving-in mechanism further comprises a decoupling device for decoupling the coupling device of the operating mechanism from the striking element.

20. (Amended) The device according to Claim 13, [characterized in that] wherein the device [is constructed as a gun] includes a pistol grip.

21. (Amended) The device according to Claim [17, characterized in that] 18 wherein the operating mechanism [is constructed as a gun] further includes a finger operable trigger.

22. (Amended) The device according to Claim [18, characterized in that] 21 wherein the [operating mechanism is a gun] finger operable trigger is coupled with a second carriage displaceable against a spring force, and the coupling device [allows for a coupling of the first carriage] couples and decouples [with] the second carriage with the striking element.

23. (Amended) The device according to Claim 20, [characterized in that] wherein the receiving element [is arranged] extends forwardly from an upper part of the pistol grip in the manner of a gun barrel in relation to a gun body [of the gun].

24. (Amended) The device according to Claim 13, [characterized in that] wherein the receiving element further comprises a self-locking mechanism in the slot for releasably engaging the support element of the implant.

25. (Amended) A device for securing a self-retaining implant of the type having a support element, an extension extending therefrom, and a spike affixed to the extension to a bone cover or a bone fragment, [with] the device comprising:

a force-transmitting element for cooperating with the implant; and

a driving-in mechanism for applying a striking force to the force-transmitting element in order to drive-in the implant into the bone cover or bone fragment.

26. (Amended) A device for securing a self-retaining implant of the type having a support element, an extension extending therefrom, and a spike affixed to the extension to a bone cover or bone fragment, [with] the device comprising:

a receiving element for releasably receiving the implant; and

a force-receiving surface coupled in a force-transmitting manner with the receiving element for introducing a driving-in force into the implant, in order to drive [the implant, preferably at least] the spike of the implant, laterally into the bone cover or into the bone fragment.

